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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/538,279	06/10/2005	Sung-il Park	GB02 0231 US	1870

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EXAMINER

RAYMOND, BRITTANY L

ART UNIT	PAPER NUMBER
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1795

MAIL DATE	DELIVERY MODE
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08/20/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/538,279	Applicant(s) PARK ET AL.	
	Examiner BRITTANY RAYMOND	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 June 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6/10/2005</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. Figures 1A-1C should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

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3. Claims 1-6 and 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyazaki (U.S. Patent 6287733) in view of Tanaka (U.S. Patent Publication 2002/0051943).

Miyazaki discloses a method of forming a liquid crystal display device comprising: coating a color layer on a substrate, hardening the layer, exposing the layer to light, developing the layer to form a spacer and color filter, and repeating this process several times (Column 4, Line 60-Column 5, Line 41), as recited in claims 1, 3, 5, 6 and 10 of the present invention. Miyazaki also discloses that spacers are formed over a thin film transistor (Column 4, Lines 7-10), as recited in claim 8 of the present invention.

Miyazaki fails to disclose that photomasks comprising transparent, half-tone and opaque regions are used to form the spacers and color filters, that the opaque areas of the photomasks create the spacers, and that the half-tone regions of the photomasks create the color filters.

Tanaka discloses a method of manufacturing an electronic device comprising the steps of placing a photosensitive film on a substrate and using a half-tone mask having transparent, half-tone and opaque areas to expose the photosensitive film (Paragraphs 0044-0046), as recited in claims 1, 3, 9 and 10 of the present invention. Tanaka also discloses that the half-tone mask can be used to manufacture an integrated circuit device and that the opaque areas of the mask are used to form narrow gate electrodes, while the half-tone areas are used to form wider alignment marks (Paragraphs 0083-0084). Tanaka states that the invention can also be used to manufacture other electronic devices having extremely fine patterns, such as liquid crystal display devices

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(Paragraph 0018). It is apparent from Figures 6A-6D that the gate electrodes of the device would be similar to the spacers of a liquid crystal display device, which shows that the spacers would be formed from the opaque areas of the mask, as recited in claim 10 of the present invention. This would then lead to the alignment marks of the device of Tanaka to be similar to the color filters of a liquid crystal display device, which shows that the color filters would be formed from the half-tone regions of the mask, as recited in claims 2 and 4 of the present invention.

It would have been obvious to one of ordinary skill in the art, at the time of invention by applicant, to have used the half-tone mask of Tanaka in the process of forming the liquid crystal display device of Miyazaki because Tanaka teaches that the mask allows for patterns of different sizes and shapes to be formed in one exposure step, which results in a more efficient process.

4. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miyazaki (U.S. Patent 6287733) in view of Tanaka (U.S. Patent Publication 2002/0051943) as applied to claims 1-6 and 8-10 above, and further in view of Zhang (U.S. Patent Publication 2001/0013909).

The teachings of Miyazaki and Tanaka have been discussed in paragraph 3 above.

Miyazaki and Tanaka fail to disclose that the liquid crystal display comprises an array of pixels arranged in rows and columns, wherein the spacer is located at a row/column intersection.

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Zhang discloses a liquid crystal display device having gate lines and data lines intersecting and spacers placed at the intersecting portion (Paragraph 0020), as recited in claim 7 of the present invention.

It would have been obvious to one of ordinary skill in the art, at the time of invention by applicant, to have formed the spacers at an intersecting portion of the pixels, as suggested by Zhang, in the process of Miyazaki and Tanaka because Zhang teaches that it is common to form the spacers in the areas between the features of the device in order for the display device to work more accurately.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BRITTANY RAYMOND whose telephone number is (571)272-6545. The examiner can normally be reached on Monday through Friday, 8:30 a.m. - 5:00 p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mark F. Huff/

Supervisory Patent Examiner, Art Unit 1795

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